

1976



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January 1977 LT Reck

Personnel

1. Alfred O. Manko, Refuge Manager, GS-485-12, 8/8/71
Permanent Full-time
2. Larry T. Reck, Refuge Manager, GS-435-7, 10/1/72
Permanent Full-time
3. Bonnie H. Hull, Bio. Tech., GS-404-7 8/2/65
Permanent Full-time
4. Harold C. Milligan, Tractor Oper., WG-5705-6, 5/14/75
Permanent Full-time
5. Janis A. Turner, Clerk-typist, GS-322-4, 7/19/76
Permanent Part-time
6. Harriet L. Weger, Bio. Aid, GS-404-3, 11/22/76
Temporary
7. Stuart L. Burnside, Laborer, WG-3502-2, 4/7/72 - 10/23/76
Part-time Furlough (Furloughed)
8. Ervin Windsor, Laborer, WG-3502-2, 9/28/92 - 10/23/76
Full-time Furlough (Furloughed)
9. David A. Graber, Bio. Aid, GS-404-3 11/9/75 - 5/24/76
Temporary

Review and Approvals

Alfred O. Manko
Alfred O. Manko 2/1/77
Submitted by Date

James W. Sawyer 2/12/77
Area Office Date

Suan Lake NWR, Missouri
Refuge

Regional Office Date

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I. GENERAL

A. Introduction

Swan Lake National Wildlife Refuge established in 1937 in north-central Missouri is an area of 10,670 acres. Water held in three shallow impoundments, namely Swan Lake, Silver Lake, and South Pool covers about 5,000 acres. Some 2,700 acres are farmed, and about 1,100 acres are held in permanent grass. Low-grade bottomland timber covers approximately 1,400 acres bordering two natural drainages. Roads, buildings, and almost 10 miles of levees usurp the remainder. All but about 250 acres of the refuge are extremely flood prone. It is not uncommon for 75 percent to 90 percent of the refuge to be inundated a half-dozen times a year.

Located within a large agricultural area, the refuge and surrounding farms attract the largest wintering concentration of Eastern Prairie Population of Canada geese in the Mississippi Flyway. Flyway objectives call for a post-season population of 200,000 Canada geese; most of which winter on and in the vicinity of the refuge.

B. Climatic and Habitat Conditions

Calendar year 1976 was abnormally dry. Total precipitation amounted to 27 inches as compared to the average annual amount of 38.27 inches, and the 54.44 inches that fell in 1969.

It was a mild year except for the last three months which were unusually cold and harsh. Heavy frosts occurred during the first week of October, and impoundment waters froze November 1. In December sub-zero temperatures were the rule rather than the exception; falling as low as -29° F. Several days the maximum temperature remained below 0° F.. A foot of snow drifted and redrifted throughout much of the month.

Mild, dry weather in the spring permitted early planting. The hot, dry weather during July and August, however, cut corn yields almost in half; down to an average of 56 bushels per acre. In contrast grain sorghum (milo) thrived very well and produced an average of 103 bushels per acre. The drought continued well into September. Wheat sown in August did not germinate until late September. It had no chance to gain even a measure of growth before being set upon by the geese. Consequently, corn and green browse were in short supply, especially when expecting some 225,000 geese.

For the second successive year Swan Lake went completely dry. Unlike in 1975, however, in 1976 there was sufficient water in Silver Lake to reflood the Swan Lake basin. Moist soil vegetation grew profusely in the drying lake bed, and when reflooded, provided ideal conditions for ducks and geese.

Off the refuge weather conditions were favorable and encouraged crops to be planted early and harvested early. This reduced the potential for severe crop depredations. It also reduced the amount of available food for wildlife because about 75 percent of the harvested fields were fall plowed.

C. Land Acquisition

Not applicable.

D. System Status

1. Objectives

Original objectives called for a peak population of 125,000 Canada geese. This had to be modified to accommodate the Flyway Council's goal for a post-season flock of 200,000 Canada geese in the Eastern Prairie Population. To meet this goal the refuge farming program will cost about \$100,000 annually. This is about \$40,000 more than was spent in 1976. At the NFIO level farming would be dropped as a refuge operation, and revert to a sharecrop farming program. Obviously, under a sharecrop program the amount of food available for wildlife would be much less than under a refuge farming program, and neither the Flyway Council's goal nor the original refuge objective could be met.

2. Funding

Fiscal year 1976 funding as follows:

Sub-activity	Planning Allowance
1210	\$119,000
1220	1,000
1230	4,000
1400	250
1500	13,500
Total	\$137,750

Manpower pattern is as shown on first page.

This is the second successive year that a Biological Aid has been employed to aid farmers with depredation problems from geese, and to gather data concerning these depredations to aid in a study to be undertaken in the near future.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

No significant construction accomplished. Some field work and plans, however, were completed for major flood-damage work to be done in 1977. This work includes dike repairs, dike construction, spillway construction, construction of water control structures, and regravol roads. The total amount of flood-damage money that will be available seems to be an elusive figure depending upon with whom and when discussed, but originally it was \$390,000.

B. Maintenance

The shop was improved in appearance, safety and efficiency by painting the interior and sorting, rearranging, and straightening tools and materials. YCC headquarters was rewired and new lighting fixtures installed to improve safety and appearance.

C. Wildfire

No wildfires occurred on the refuge.

III. HABITAT MANAGEMENT

A. Croplands

Some 1,750 acres were farmed by refuge personnel, 750 acres by Missouri Department of Conservation personnel, and 200 acres by two permittees. Refuge farmed crops were 750 acres of grain sorghum, 550 acres of corn, and 450 acres of wheat. Actually, 650 acres were planted to corn, 100 acres were replanted to grain sorghum after suffering severe cutworm damage. Flooded land seems much more susceptible to heavy infestations of cutworms than unflooded areas, and the 100 acres that had to be replanted had been flooded very early in the spring.

The acreage that was planted to corn was fertilized according to soil tests to yield 100 bushels per acre at a cost of \$20. per acre. As previously stated, adverse weather reduced the yield to average 56 bushels per acre.

Two varieties of grain sorghum were planted to determine the extent and severity of damage by greenbugs. One variety was advertised as being greenbug resistant; the other not so advertised. There seemed to be no appreciable difference in the health, vigor and yield of the two varieties. Consequently, there seems to be no need to purchase the premium priced, resistant varieties at this time. The grain sorghum acreage was not fertilized and the yield averaged 103 bushels per acre. Geese seemed to accept the sorghum as readily as corn, and mallard ducks greatly preferred it to the point of disdaining the corn.

Missouri Department of Conservation personnel farm about 750 acres within the public hunting area on the refuge. All 750 acres were sown to wheat. State personnel also helped refuge personnel with the refuge farming program. The refuge is dependent upon the State's manpower and equipment to get the job done.

Two permittees farmed 200 acres; almost all to corn. The wildlife, however, only got about 75 acres of it, the farmers got the lions share. Because of some questionable actions over a period of years, 1976 was one permittees last year. These 100 acres are within the public hunting area and will usually be sown to wheat or clover in future years.

Some 1,484 bushels of wheat seed were received from De Soto National Wildlife Refuge. Some of this seed was furnished to the State for planting on the refuge because the State's sources were inadequate to the needs.

Farming for wildlife and particularly for geese is an established and proven practice. Farming is considered the single most important program at Swan Lake NWR. It provides for the geese, and almost all outputs are contingent upon the geese.

In 1976, 110,000 bushels of grain and 250 tons of green browse were produced on the refuge. This translates into about 13 million goose-use days, and was less than half enough food to support the Eastern Prairie Population of Canada geese that returned to the Swan Lake area.

B. Grasslands

No haying or grazing occurred on the refuge. The exceptionally dry weather permitted mowing and burning 99 acres of wet meadow to retard encroachment by woody vegetation. This provided some additional grazing area for geese. Other grassland areas amounting to almost 1,000 acres were mowed to provide as much browse for geese as possible.

C. Wetlands

The water level in Swan Lake was lowered to expose mudflats and produce moist soil vegetation, and reflooded in the fall with water from Silver Lake. This required that South Pool also be drawn down because all water discharged from the refuge must be passed through the South Pool water control structures. Consequently, moist soil vegetation covered some 1,500 acres within the two pools. This provided an excellent crop of highly preferred foods for ducks and geese.

Siltation of the Swan Lake and Silver Lake basins is quite severe. Old channels and deep spots are completely filled. An outlet channel and several pot holes were blasted in the Swan Lake basin by a National Guard unit to facilitate drainage and improve the habitat by providing a few deep spots that will hold water even when the rest of the lake is dry, and become openings in the vegetation when the basin contains water.

D. Forestlands

Nothing to report.

E. Other Habitat

Nothing to report.

F. Wilderness and Special Areas

About 1,000 acres of bottomland timber have been designated as a Natural Area. Nothing was done to violate its designation.

G. Easements for Waterfowl Management

Not applicable.

IV. WILDLIFE

A. Endangered and/or Threatened Species

Nothing to report.

B. Migratory Birds

1. Waterfowl

Autumn and winter population figures are obtained from aerial censuses conducted by Missouri Department of Conservation waterfowl biologists. The reliability of these data for geese is considered very good; within Reliability Class B. Ducks and coots are more difficult to census from the air than are geese. At Swan Lake NWR, however, impoundments have little or no vegetation in them, and a low percentage of ducks and coots are hidden from view. Consequently, the reliability of the population figures are considered good, but probably still fall to Reliability Class C. At times ground counts and aerial photography supplement the aerial censuses.

Beginning with the 1970 hunting season, the high harvest states of the Eastern Prairie Population of Canada geese accepted restricting harvest regulations to increase the flock to a post-season level of 200,000 birds. The following table is quite convincing that hunting plays an important role in population levels.

<u>Year</u>	<u>Peak Population</u>
1969	110,200
1970	113,000
1971	160,500
1972	155,200
1973	163,100
1974	170,200
1975	196,000
1976	211,400

Although more Canada geese concentrated in the Swan Lake Zone than ever before, hunters failed to harvest the quota of 25,000 by 5,655 geese in a 45-day season. This is attributed primarily to the unusual behavior of the geese. Usually upon their arrival they immediately start to feed in the refuge fields. Often all available food on the refuge is consumed by November 1, forcing the geese to fly to neighboring farm fields in search of food. Obviously, this makes them quite vulnerable

to hunters. This year, however, they hardly touched a grain on the refuge until the first day of the hunting season. Thereafter they had plenty of food on the refuge to last them through the season and they exposed themselves to the guns much less than normal. This in turn discouraged hunters, and hunting pressure faded rapidly after the first couple of weeks.

Pre and post-season banding quotas were met. In the pre-season sample 555 of 1,235 Canada geese banded were immatures. In the post-season sample 576 of 1,953 Canada geese banded were immatures. The quotas were for 500 immatures to be banded, or 2,000 geese total whichever came first in both pre and post-season programs.

Conditions were excellent for ducks on the refuge. Flooded moist soil vegetation attracted many species in larger than normal populations. Also, the drouth resulted in poor water and marsh conditions throughout much of Missouri causing larger concentrations of ducks to occur where conditions were favorable.

Impounded waters freezing much earlier than normal, however, caused early departures of all species but mallards. For mallards grain sorghum fields on the refuge proved to be much more attractive to them than open water and warmer climates to the south. Some 50,000 mallards remained here throughout December despite sub-zero temperatures.

2. Marsh and Water Birds

Many small fish were stranded in Swan Lake as it dried, and upwards of 200 great blue herons took advantage of the easy fishing for over a month. Moreover, the moist soil vegetation sprouted and grew rapidly at waters edge turning it into a "frog pond". Undoubtedly, the herons and a few cattle egrets added "frog's legs" to their menu.

Conspicuous by their absence for several years are double-crested cormorants. Once a rather common sight on the refuge, they are now a rarity. Although some changes have taken place on the refuge, it is believed that their greatly decreased numbers is the result of low reproduction more than any changes at Swan Lake NWR.

3. Shorebirds, Gulls, Terns and Allied Species

Conditions favorable for marsh and water birds were also favorable for shorebirds in the Swan Lake Basin. Many different species were observed including avocets. This was the third consecutive year avocets have visited the refuge. This would indicate more than just an accidental occurrence. Perhaps there has been an eastward extension of their breeding range.

4. Raptors

A large wintering population of Canada geese attracts many raptors to the refuge. Bald eagle numbers fluctuated between 50 and 100 from October through February. Although they sometimes harass the waterfowl, they seldom kill any. They seem content to feed on carcasses of geese that have died from other causes. Usually less than five golden eagles winter on the refuge, but hawks outnumber eagles about five to one.

Two immature bald eagles recovering from gunshot wounds were shipped here in January from Minneapolis for release on the refuge. Here they would find a milder climate, more food, and have the examples of other eagles to follow. A large winter-kill of fish made their transition back to feeding for themselves even easier than expected. Both recovered sufficiently to depart the refuge in the spring.

Six bald eagles were banded and had transmitters placed on them. Four were so marked in December 1975, and two in January 1976. One of these eagles returned in December 1976, with the transmitter still functioning.

Immature bald eagles usually outnumber adults about two to one on the refuge. This does not necessarily indicate nesting success. This high ratio of immatures to adults has been noted at other winter concentration areas. It is believed that adult eagles strongly tend to be "loners" and therefore distribute themselves throughout the winter range rather than concentrate at a few locations as do immatures.

5. Other Migratory Birds

Large flocks of common grackles and red-winged blackbirds are causing some damage to crops in this area. In the spring grackles eat the newly planted kernels of corn causing many skips in the corn rows. Flocks of red-winged

blackbirds seems to be returning earlier in the fall and depredating grain sorghum (milo) fields. This is cause for some concern because each year more sorghum is being grown on and off the refuge. Several complaints were registered this year, and scare-guns (automatic exploders) were loaned to the farmers suffering red-winged blackbird damage. To date corn has been damaged very little by red-winged blackbirds, but if the trend of returning earlier and earlier continues, more and more corn will be damaged. In explanation, red-winged blackbirds do the most damage to corn when it is in the milk and dough stages.

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

White-tailed deer, cottontail rabbits, squirrels, and raccoons are classified as game mammals in Missouri. None of these may be hunted on the refuge. In the past two years almost 100,000 white-tailed deer have been legally taken in the State.

In addition, an estimated 20,000 deer have been taken illegally and road-killed over the past two years. Whether or not the deer herd has been overharvested is not known. The herd that uses the refuge, however, is about half the size it was several years ago when it numbered about 600.

No change has been noticed in the number of cottontails and squirrels on the refuge. Hunting and trapping around the refuge seems to be holding raccoons in check. There has been no noticeable change in the population.

2. Other Mammals

Coyotes are classified as vermin and there is no closed season or bag limit in Missouri. Hunting coyotes has become popular, especially since pelts are worth about \$35 each. Still "wily coyote" persists in seemingly undiminished numbers on and off the refuge. Coyotes are economically important. Not so much from the livestock they take or the value of their pelts, but because of the vast number of investments made in 4-wheel drive trucks and CB radios by his pursuers. No self-respecting coyote hunter would be without them.

3. Resident Birds

Wild turkeys while not plentiful are now considered established on the refuge. Sightings and signs over a period of several years indicate a small resident flock.

4. Other Animal Life

Fish were eliminated from Swan Lake when it went dry. Another 200,000 fish were winter-killed in Silver Lake and South Pool. Most of the dead were drum, buffalo, and carp. Bullheads and channel catfish survived. Another large winter-kill of fish is anticipated in the 1976-77 winter. The ice is thick and snow covered.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

Conducted tours were the primary vehicle for imparting interpretive information. As yet there are no self-guiding facilities capable of giving an interpretive experience.

2. Off-Refuge

TV stations from Marksville, Missouri, Columbia, Missouri, and Des Moines, Iowa, filmed refuge wildlife and activities for special feature presentations.

B. Recreation

1. Wildlife Oriented

Fishing, wildlife observation and hunting are the major recreational activities. Fishing is permitted March 1, through September 30, daylight hours only, and in accordance with State regulations. There are no restrictions on the number of fishermen per day nor the number of times a person may fish during the open period. Fishermen visit an average about 50,000 per year. Easy access to favored fishing spots is provided by the impoundment dikes. This easy access affords many elderly fishermen the opportunity to participate in the sport.

Wildlife observation attracts the most visitors with October being the peak month. In October the weather is pleasant and the geese are here. The drive to the observation tower, open 365 days a year, traverses the

dike which impounds Swan Lake. The entire lake with thousands of active waterfowl is in full view to visitors from the dike and observation tower. During the fishing season people interested in birding and other wildlife observations may drive or walk through the refuge during daylight hours at their pleasure. A favorite pastime is to drive through in the evening to observe the deer.

Hunting on the refuge is a closely controlled activity. Geese only may be taken. The number of hunters is restricted. A lottery determines who gets reservations, when, and in which blind. A maximum of ten shells per hunter may be fired. Only one Canada goose per hunter per day may be taken, but other species of geese may also be taken within legal limits. Hunting on the refuge also provides a quality hunt. Blinds are well spaced, are isolated from each other, have a minimum of interference from other hunters, and refuge activities, and hunter success is high. Over the past several years from 4,000 to 7,000 hunters hunted on the refuge during the season. The hunt is administered by the Missouri Department of Conservation.

2. Non-Wildlife Oriented

Nothing to report.

C. Enforcement

A minimum amount of enforcement work is conducted by refuge personnel. Swan Lake National Wildlife Refuge is not in close proximity to any large cities. Activities that attract large crowds such as swimming, boating, camping, picnicking are not permitted nor demanded. The refuge just does not lend itself to these activities. Further, hunting and fishing are well monitored by State Conservation Agents. Poaching deer by spotlighting at night on and in the vicinity of the refuge has become quite a problem. Refuge personnel assisting State personnel have apprehended some culprits, but more assistance is needed from the courts to really curb these thefts.

VI. OTHER ITEMS

A. Field Investigations

An eagle-waterfowl relationship study on the refuge, in cooperation with the Missouri Cooperative Wildlife Research Unit, is in its fourth year. Graduate student Curt Griffen took over field investigations after the tragic death of Judy Southern. Ms. Southern was killed in an airplane crash while searching for marked eagles.

The first summer of field investigation concerning "Radio Telemetry Studies of Off-Territory Behavior of Mourning Doves, Related to Call-Count Survey Evaluation" was completed by Mark Sayre. This, too, is in cooperation with the Missouri Cooperative Wildlife Research Unit.

D. Cooperative Programs

Swan Lake National Wildlife Refuge had its first YCC program this year. It was a non-resident camp comprised of 20 enrollees and five staff members. Enrollees came from seven towns, some as far away as 40 miles without a single dropout. Although the camp was considered a definite success the first year's experience will result in an improved camp and program next year. Many projects were completed, but for lack of experience by enrollees and staff some were less than first class jobs.

C. Items of Interest

Mr. Marvin F. Lents, Refuge Clerk at Swan Lake National Wildlife Refuge since November 3, 1947, retired February 27, 1976. Military Service during World War II gave Marv a total of 32 years of Federal service.

It was a long, long four and one-half months without a clerk before Miss Janis A. Turner transferred from Shiawassee National Wildlife Refuge to fill the clerk's position here. Swan Lake National Wildlife Refuge was very fortunate to be able to gain an experienced person for this important position.

Assistant Refuge Manager Larry T. Keck completed 40 hours of Supervisory Training in Kansas City, Missouri, and eight weeks of Law Enforcement Training at Glynnco, Georgia. He highly recommends the Law Enforcement training although not much of it pertained to fish and wildlife laws.

Mr. Bennie H. Hull, Biological Technician, received a well deserved promotion from GS-6 to GS-7 August 15. There is no job too big or too menial for Bennie not to be able to whistle his way through it.

Refuge Manager Alfred O. Manko completed a week of YCC training in Omaha, Nebraska, and a week of Law Enforcement training at Big Lake State Park, Missouri. The law enforcement training was excellent and much needed. Refuge Manager Manko completed 30 years of federal service June 9, and was presented a 30-year tie tac by Regional Director Willoughby.

D. Safety

No lost-time accidents happened during the year. A motor vehicle accident shook-up and slightly injured five YCC enrollees and the group aid driving the vehicle.

Lack of experience in government procedures by YCC staff plus government red-tape has resulted in two doctors and the hospital still unpaid at the end of the year. One YCC enrollee suffered a broken toe while playing ball in his bare feet.

Regular and impromptu safety meetings were held throughout the year. Defensive Driving eight-hour refresher course was completed by all employees.

It has been 4,274 days since the last lost-time accident occurred at this station.